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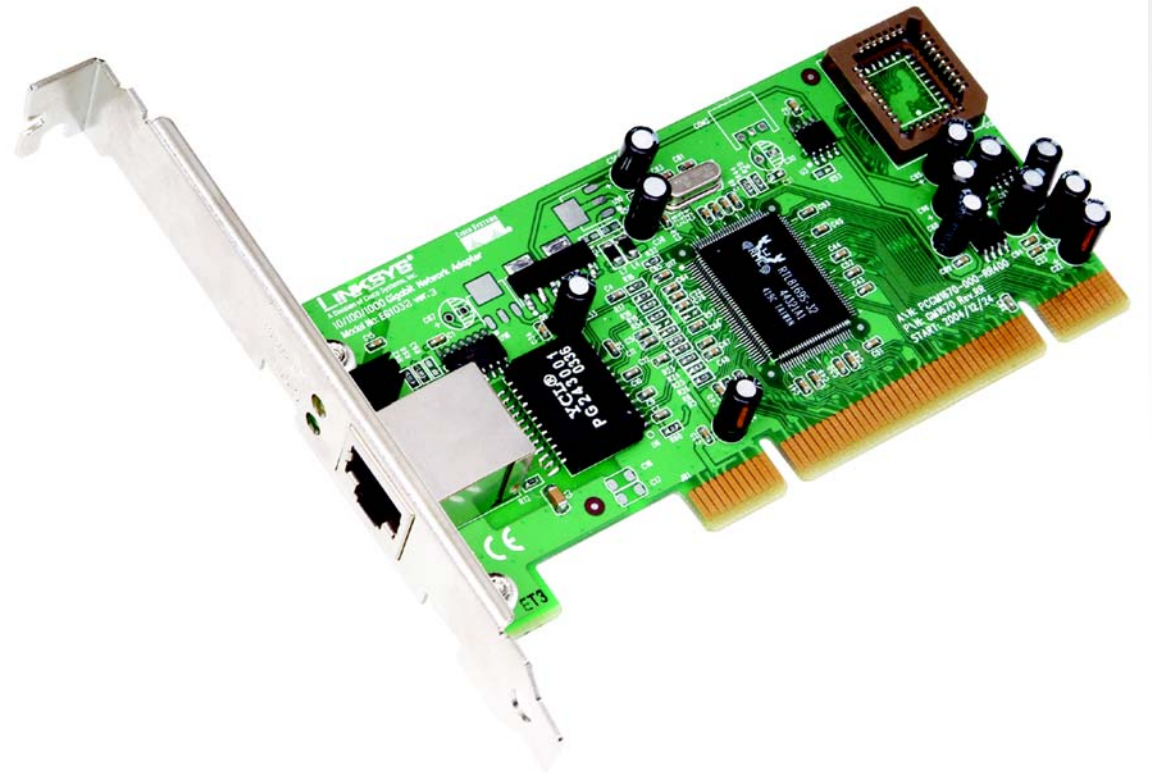
10/100/1000

Gigabit

Network Adapter

User Guide

WIRED

CISCO SYSTEMS

Model No. **EG1032 v3**

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> **WARNING:** This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling.*

How to Use this User Guide

This User Guide to the Gigabit Network Adapter has been designed to make understanding networking with the Gigabit Network Adapter easier than ever. Look for the following items when reading this guide:

This checkmark means there is a Note of interest and is something you should pay special attention to while using the Gigabit Network Adapter.

This exclamation point means there is a Caution or warning and is something that could damage your property or the Gigabit Network Adapter.

This question mark provides you with a reminder about something you might need to do while using the Gigabit Network Adapter.

In addition to these symbols, there are definitions for technical terms that are presented like this:

word: definition.

Also, each figure (diagram, screenshot, or other image) is provided with a figure number and description, like this:

Figure 0-1: Sample Figure Description

Figure numbers and descriptions can also be found in the "List of Figures" section in the "Table of Contents".

Table of Contents

List of Figures

Chapter 1: Introduction

Welcome

Thank you for choosing the 10/100/1000 Gigabit Network Adapter. Built to run the fastest video, publishing, and database network applications, the Gigabit Network Adapter is a high performance network adapter for PCI local bus computers. Boasting an incredible maximum data throughput of 1000 megabits-per-second in full duplex mode, it includes a 10BaseT/100BaseTX/1000BaseTX port, which means that you can begin integrating Gigabit now—even if you don't plan on upgrading to a 1000Mbps network right away.

The Gigabit Network Adapter is Windows Plug-and-Play compatible. Wake-On-LAN support is built in—you can wake up your workstations from anywhere on the network! Built-in support for the widest range of PCI mother-boards, networking hardware, and software means you don't have to worry about compatibility.

Use the instructions in this Guide to help you install the Gigabit Network Adapter in your PC, install its driver, and configure it. These instructions should be all you need to get the most out of the Gigabit Network Adapter.

Full duplex: the ability of a networking device to receive and transmit data simultaneously.

What's in this Guide?

This user guide covers the steps for installing the Adapter, installing its driver, and configuring it.

- Chapter 1: Introduction
  This chapter describes the Adapter's applications and this User Guide.

- Chapter 2: Getting to Know the 10/100/1000 Gigabit Network Adapter
  This chapter describes the physical features of the Adapter.

- Chapter 3: Installing the 10/100/1000 Gigabit Network Adapter in Your PC
  This chapter instructs you on how to install the Adapter inside your PC.

- Chapter 4: Installing the Driver for Windows XP
  This chapter explains how to install the Windows XP driver for the Adapter.

- Chapter 5: Installing the Driver for Windows 2000
  This chapter explains how to install the Windows 2000 driver for the Adapter.

- Chapter 6: Installing the Driver for Windows Millennium or 98SE
  This chapter explains how to install the Windows Millennium or 98SE driver for the Adapter.

- Chapter 7: Configuring the 10/100/1000 Gigabit Network Adapter in Windows XP or 2000
  This chapter instruct you on how to configure the Adapter in Windows XP or 2000.

- Chapter 8: Configuring the 10/100/1000 Gigabit Network Adapter in Windows Millennium or 98SE
  This chapter instruct you on how to configure the Adapter in Windows Millennium or 98SE.

- Appendix A: Troubleshooting
  This appendix describes some potential problems and solutions regarding use of the Adapter.

- Appendix B: Windows Help
  This appendix describes how you can use Windows Help for instructions about networking, such as installing
  the TCP/IP protocol.

- Appendix C: Glossary
  This appendix gives a brief glossary of terms frequently used in networking.

- Appendix D: Specifications
  This appendix provides the technical specifications for the Adapter.

- Appendix E: Warranty Information
  This appendix supplies the warranty information for the Adapter.

- Appendix F: Regulatory Information
  This appendix supplies the regulatory information regarding the Adapter.

- Appendix G: Contact Information
  This appendix provides contact information for a variety of Linksys resources, including Technical Support.

Chapter 2: Getting to Know the 10/100/1000 Gigabit Network Adapter

Port and LEDs

The Adapter's port and LEDs are located on the metal panel.

Figure 2-1: Port and LEDs

RJ-45 Port   The **RJ-45** port is where you will connect your Ethernet network cable.

Gigabit LED   Green. The **Gigabit** LED lights up when the Adapter is operating at 1000Mbps. If the Gigabit LED is not lit and the PC is powered on, the Adapter has automatically determined that your network is operating at a slower speed and adjusted accordingly.

Link/Act LED   Orange. The **Link/Act** LED lights up when the Adapter is connected to a network. It flashes when there is network activity.

Chapter 3: Installing the 10/100/1000 Gigabit Network Adapter in Your PC

Hardware Installation

1. Power off your PC and any peripheral equipment attached to it. Unplug your PC's power cord.

2. Open your PC's case, and locate an available PCI slot on the motherboard. Check with your computer manufacturer if you need instructions.

3. Remove the metal PCI slot cover on the back of the PC.

4. Insert the Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. You may have to apply a bit of pressure to slide the Adapter all the way in.

5. After the Adapter is set firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then close your PC's case.

6. Connect one end of the Ethernet network cable to the RJ-45 port of the Adapter. (Category 5e or better Ethernet network cabling is required for Gigabit transmission speeds.)

7. Connect the other end of the Ethernet network cable to your network's Gigabit switch port.

8. Reconnect your PC's power cord, and then power on your computer.

Now that the hardware installation is complete, you will install the appropriate Windows driver for the Adapter. Proceed to the chapter for your PC's operating system.

For Windows XP, go to "Chapter 4: Installing the Driver for Windows XP."

For Windows 2000, go to "Chapter 5: Installing the Driver for Windows 2000."

For Windows Millennium or 98SE, go to "Chapter 6: Installing the Driver for Windows Millennium or 98SE."

Figure 3-1: Insert the Adapter into the PCI Slot
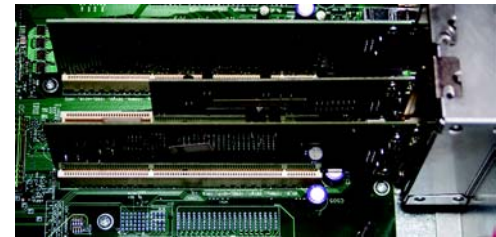
Figure 3-2: Set the Adapter Firmly in Place

Figure 3-3: Connect the Ethernet Network Cable

NOTE: For best results, use Category 5e or better Ethernet network cabling. This is the only cabling that will work for Gigabit transfer speeds. (You can use Category 5 Ethernet network cabling for 100Mbps or lower speeds.) The cable run from the Adapter to the network hub or switch should not exceed 328 feet (100 meters).

Chapter 4: Installing the Driver for Windows XP

Overview

After physically installing the Adapter in your computer, follow these instructions to install the driver required for Windows XP. If you need to uninstall the Adapter, refer to the "Uninstalling the Adapter" section at the end of this chapter.

Installing the Driver

1. Power on your computer. Make sure you have administrative rights on your computer; otherwise you cannot install the driver.

2. Windows XP will automatically detect the presence of the Adapter in your computer. Insert the Driver CD into your computer's CD-ROM drive.

3. On the *Welcome* screen of the Found New Hardware Wizard, select **Install from a list or specific location (Advanced)**, and click the **Next** button.

4. After selecting **Search for the best driver in these locations** on the screen that appears, choose **Include this location in the search:**, and enter **D:\driver\WinXP** in the field provided (if "D" is the letter of your CD-Rom drive). Then, click the **Next** button.

5. A screen may appear informing you that the software has not passed Windows Logo testing. The software does work with Windows XP. Click the **Continue Anyway** button.

Figure 4-1: Welcome

Figure 4-2: Search This Location

Figure 4-3: Windows Logo Testing

6. This screen will appear while the wizard installs the driver.
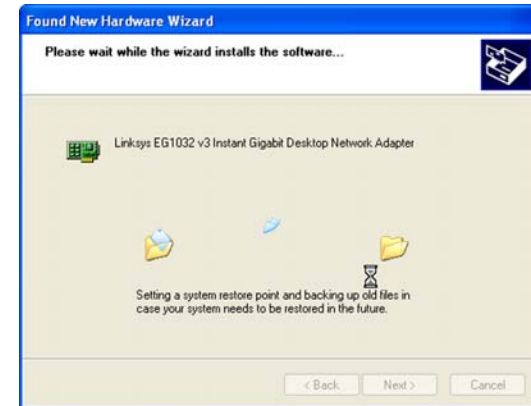
Figure 4-4: Wizard Installing Driver

7. When Windows XP has finished installing the driver, the *Completing the Found New Hardware Wizard* screen will appear. Click the **Finish** button.

The Windows XP driver installation is complete. If you want to configure the Adapter, refer to "Chapter 7: Configuring the 10/100/1000 Gigabit Network Adapter in Windows 2000 or XP" for more information. If you want to share files or printers, refer to Windows Help.

If you need to uninstall the Adapter, proceed to the "Uninstalling the Adapter" section.
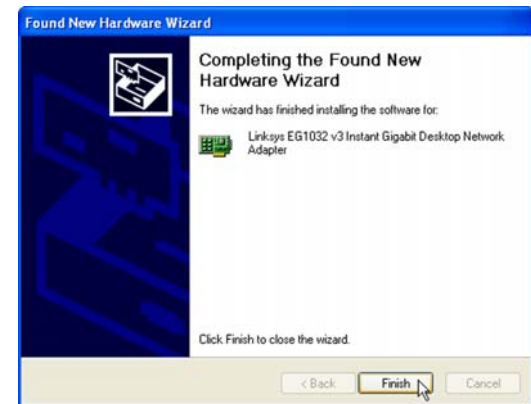
Figure 4-5: Driver Installation Complete

Uninstalling the Adapter

1. If you are using Windows XP, click **Start**. Select **Settings** and click **Control Panel**. Double-click **System** and click the **Hardware** tab.

2. Click **Device Manager** and then the **+** sign next to Network adapters. Right-click the **Gigabit Network Adapter**, and click **Uninstall**.
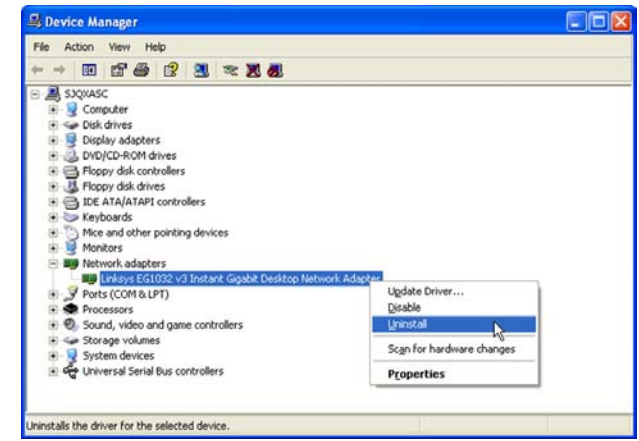
Figure 4-6: Device Manager for Windows XP

3. On the *Confirm Device Removal* screen, click the **OK** button.

Figure 4-7: Confirm Device Removal

Chapter 5: Installing the Driver for Windows 2000

Overview

After physically installing the Adapter in your computer, follow these instructions to install the driver required for Windows 2000. If you need to uninstall the Adapter, refer to the "Uninstalling the Adapter" section at the end of this chapter.

Installing the Driver

1. Power on your computer. Make sure you have administrative rights on your computer; otherwise you cannot install the driver.

2. Windows 2000 will automatically detect the presence of the Adapter in your computer. Insert the Driver CD into your computer's CD-ROM drive.

3. On the *Welcome* screen of the Found New Hardware Wizard, click the **Next** button.

4. On the *Install Hardware Device Drivers* screen, select **Search for a suitable driver for my device (recommended)**. Then click the **Next** button.

5. On the *Locate Driver Files* screen, select **Specify a location**, and click the **Next** button.

Figure 5-1: Welcome

Figure 5-2: Install Hardware Device Drivers

Figure 5-3: Locate Driver Files

6. In the field provided, enter **D:\Driver\WIN2000** (if "D" is the letter of your hard drive). Then click the **OK** button.

Figure 5-4: Driver Location

7. On the *Driver Files Search Results* screen, click the **Next** button.
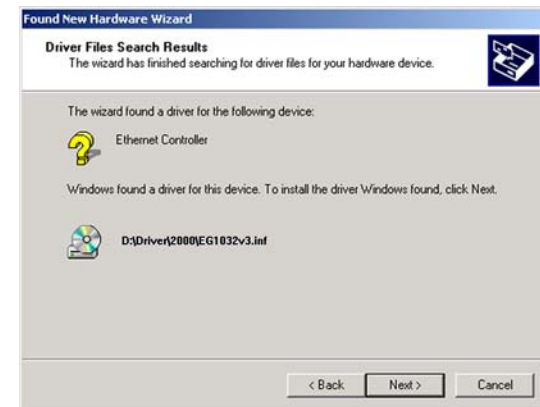
Figure 5-5: Driver Files Search Results

8. When Windows 2000 has finished installing the driver, the *Completing the Found New Hardware Wizard* screen will appear. Click the **Finish** button.

The Windows 2000 driver installation is complete. If you want to configure the Adapter, refer to "Chapter 7: Configuring the 10/100/1000 Gigabit Network Adapter in Windows 2000 or XP" for more information. If you want to share files or printers, refer to Windows Help.

If you need to uninstall the Adapter, proceed to the "Uninstalling the Adapter" section.

Figure 5-6: Driver Installation Complete

Uninstalling the Adapter

1. If you are using Windows 2000, click **Start**. Select **Settings** and click **Control Panel**. Double-click **Administrative Tools** and then double-click **Computer Management**.

2. Click the **Device Manager** tab and then the **+** sign next to Network adapters.

3. Right-click the **Gigabit Network Adapter**, and click **Uninstall**.

Figure 5-7: Computer Management for Windows 2000

4. On the *Confirm Device Removal* screen, click the **OK** button.

Figure 5-8: Confirm Device Removal

Chapter 6: Installing the Driver for Windows Millennium or 98SE

Overview

After physically installing the Adapter in your computer, follow these instructions to install the driver required for Windows Millennium or 98SE. If you need to uninstall the Adapter, refer to the "Uninstalling the Adapter" section at the end of this chapter.

Installing the Driver

1. Power on your computer. Make sure you have administrative rights on your computer; otherwise you cannot install the driver.

2. Windows Millennium or 98SE will automatically detect the presence of the Adapter in your computer. Insert the Driver CD into your computer's CD-ROM drive.

3. On the first screen of the Add New Hardware Wizard, select **Specify the location of the driver (Advanced)**. Then click the **Next** button.

4. Select **Search for the best driver for my device. (Recommended)**. Select **Specify a location:**.

   If your computer is running Windows Millennium, enter **D:\Driver\WinME** in the field provided (if "D" is the letter of your hard drive).

   If your computer is running Windows 98SE, enter **D:\Win98** in the field provided (if "D" is the letter of your hard drive).

   Then click the **Next** button.

5. After Windows has found the driver, click the **Next** button.

Figure 6-1: Add New Hardware Wizard

Figure 6-2: Enter Location of Driver

Figure 6-3: Driver Files Search Results

6. When Windows Millennium or 98SE has finished installing the driver, click the **Finish** button.

Figure 6-4: Driver Installation Complete

7. The *System Settings Change* screen will appear and ask you if you want to restart your computer. If you want to restart your computer now to finish the driver installation, click the **Yes** button. If you want to restart your computer later, click the **No** button.

After you have restarted your computer, the Windows Millennium or 98SE driver installation will be complete. If you want to configure the Adapter, refer to "Chapter 8: Configuring the 10/100/1000 Gigabit Network Adapter in Windows Millennium or 98SE" for more information. If you want to share files or printers, refer to Windows Help.

If you need to uninstall the Adapter, proceed to the "Uninstalling the Adapter" section.

Figure 6-5: Restart Computer

Uninstalling the Adapter

1. On your desktop, right-click **My Computer** and click **Properties**.

2. Click the **Device Manager** tab and then the **+** sign next to Network adapters.

3. Click the **Gigabit Network Adapter**, and click the **Remove** button.
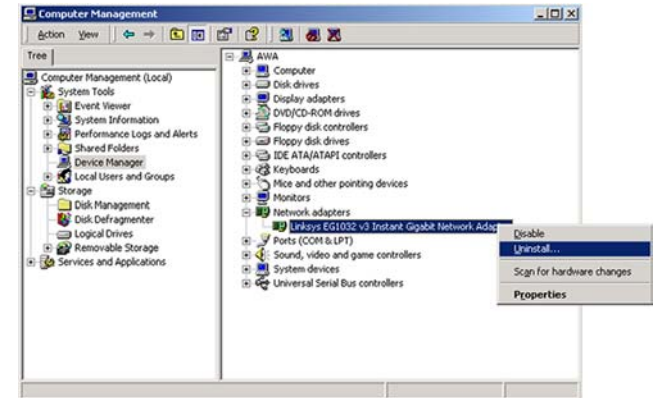

Figure 6-6: Device Manager for Windows Me or 98SE

4. On the *Confirm Device Removal* screen, click the **OK** button.

Figure 6-7: Confirm Device Removal

5. The *System Settings Change* screen will appear and ask you if you want to restart your computer. If you want to restart your computer now to finish removing the Adapter, click the **Yes** button. If you want to restart your computer later, click the **No** button.

Figure 6-8: System Settings Change

Chapter 7: Configuring the 10/100/1000 Gigabit Network Adapter in Windows XP or 2000

Overview

Linksys recommends that you use the default settings of the Adapter; however, if you wish to alter the default settings, then follow these instructions to access the Adapter's configuration in Windows XP or 2000.

Accessing the Adapter's Configuration

1. If you are using Windows XP, click **Start**. Select **Settings** and click **Control Panel**. Double-click **System** and click the **Hardware** tab. Proceed to step 2.

   If you are using Windows 2000, click **Start**. Select **Settings** and click **Control Panel**. Double-click **Administrative Tools** and then double-click **Computer Management**.

2. Click the **Device Manager** tab and then the **+** sign next to Network adapters. Right-click the **Gigabit Network Adapter**, and click **Properties**.

3. The *General* tab will appear. Make changes to the Adapter's configuration using this and four additional tabs.

Adapter Configuration

The Adapter offers five configuration tabs: General, Advanced, Driver, Resources, and Power Management.

General

You will be able to access the Device usage feature and start the troubleshooter from this tab. Click the **OK** button to save any change.

Figure 7-1: Device Manager for Windows XP or 2000
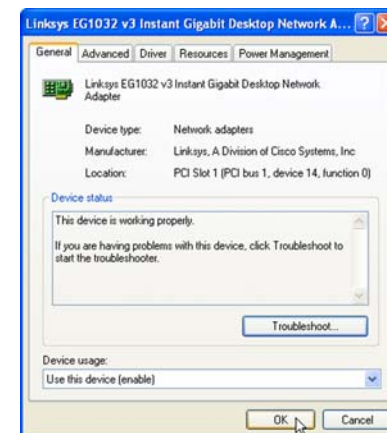
Figure 7-2: General Tab for Windows XP or 2000

Advanced

In the *Property* window, you have several properties you can configure:802.1Q/1p VLAN Tagging, Flow Control, Jumbo Frame, Link Speed/Duplex Mode, Network Address, Offload Checksum, and Offload TCP_LargeSend. Select the Property you want, and select Enable or Disable from the *Value* drop-down menu. When you have finished your changes, click the **OK** button to save your changes.

Figure 7-3: Advanced Tab for Windows XP or 2000

Driver

On this tab, click the **Driver Details** button to view details about the driver files. Click the **Update Driver** button to update the driver. If the Adapter fails after you upgrade its driver, click the **Roll Back Driver** button to roll back to the previously installed driver (the Roll Back Driver feature is not available in Windows 2000). To uninstall the driver, click the **Uninstall** button. The *Confirm Device Removal* screen will appear and ask you to confirm that you want to uninstall the Adapter. Click the **OK** button to uninstall.

When you have finished, click the **OK** button.

Figure 7-4: Driver Tab for Windows XP

Resources

To change the setting of a resource, select a Resource type. Then click the **Change Setting** button. Select the new setting, and click the **OK** button. If you want to use the automatic setting, click the checkbox next to *Use automatic settings*, and click the **OK** button.
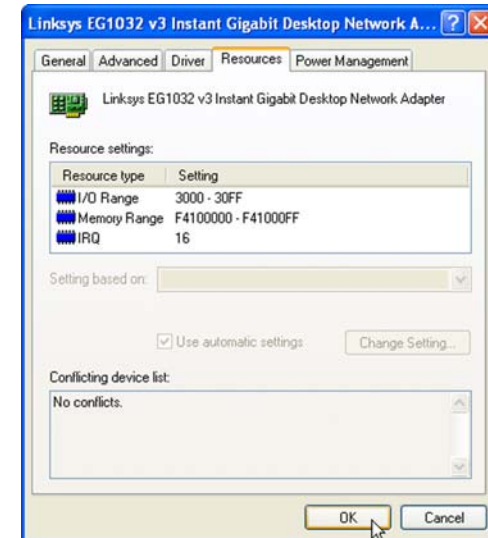
Figure 7-5: Resources Tab for Windows XP or 2000

Power Management

If you want to allow the computer to power down the Adapter for energy-saving purposes, click the checkbox next to *Allow the computer to turn off this device to save power*.

If you want to allow the Adapter to bring the computer out of standby mode, then click the checkbox next to *Allow this device to bring the computer out of standby*. If this feature is enabled and your computer is using Windows XP, another feature will be available; click the checkbox next to *Only allow management stations to bring the computer out of standby* if you want to enable this feature.

When you have finished, click the **OK** button to save any changes.

Figure 7-6: Power Management Tab for Windows XP

Chapter 8: Configuring the 10/100/1000 Gigabit Network Adapter in Windows Millennium or 98SE

Overview

Linksys recommends that you use the default settings of the Adapter; however, if you wish to alter the default settings, then follow these instructions to access the Adapter's configuration in Windows Millennium or 98SE.

Accessing the Adapter's Configuration

1. On your desktop, right-click **My Computer** and click **Properties**.

2. Click the **Device Manager** tab and then the **+** sign next to Network adapters. Click the **Gigabit Network Adapter**, and click the **Properties** button.

3. The *General* tab will appear. Make changes to the Adapter's configuration using this and three additional tabs.

Adapter Configuration

The Adapter offers four configuration tabs: General, Driver, Resources, and Power Management.

General

You will be able to access the Device usage settings through this tab. Click the **OK** button to save any change.
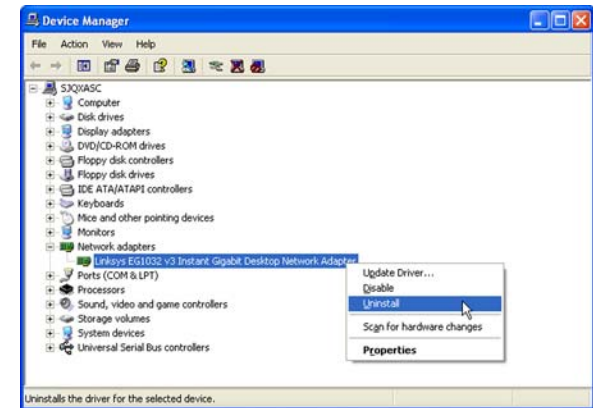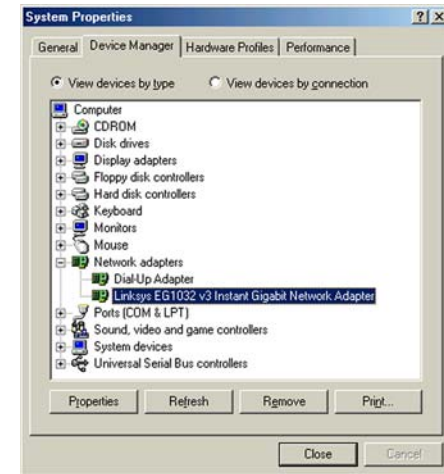

Figure 8-1: Device Manager for Windows Me or 98SE
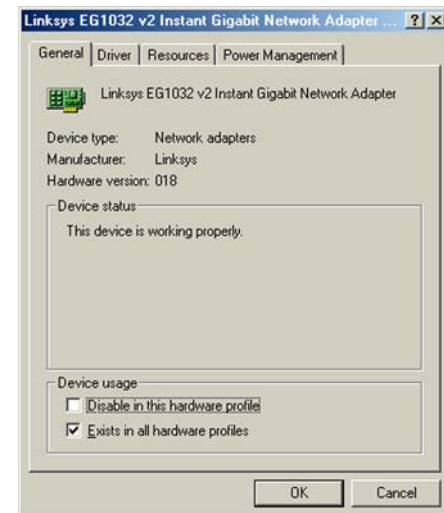
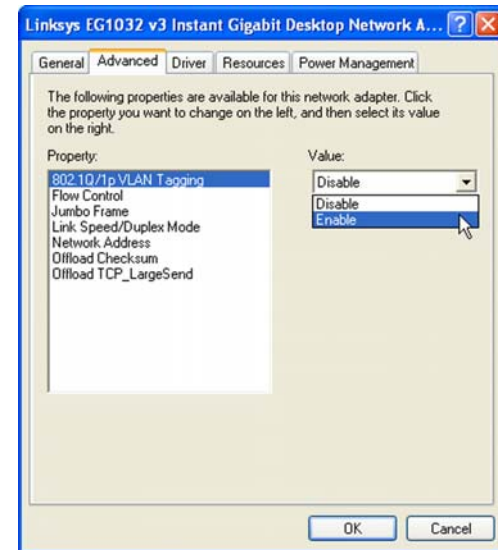**Figure 8-2: General Tab for Windows Me or 98SE**

Driver

On this tab, click the **Driver File Details** button to view details about the driver files. Click the **Update Driver** button to update the driver. When you have finished, click the **OK** button.

Resources

To change the setting of a resource, select a Resource type. Then click the **Change Setting** button. Select the new setting, and click the **OK** button. If you want to use the automatic setting, click the checkbox next to *Use automatic settings*, and click the **OK** button.

Figure 8-3: Driver Tab for Windows Me or 98SE
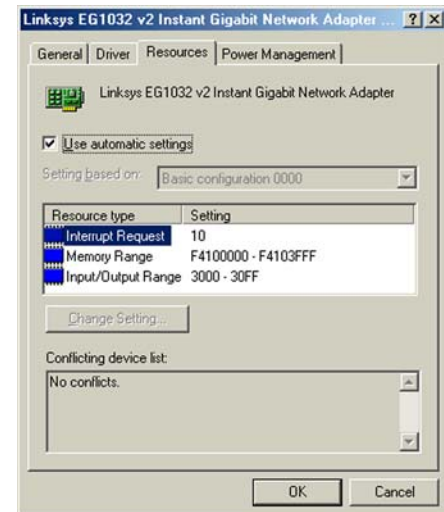
Figure 8-4: Resources Tab for Windows Me or 98SE

Chapter 8: Configuring the 10/100/1000 Gigabit Network Adapter in Windows Millennium or 98SE
Adapter Configuration

18

Power Management

If you want to allow the computer to power down the Adapter for energy-saving purposes, click the checkbox next to *Allow the computer to turn off this device to save power.*

If you want to allow the Adapter to bring the computer out of standby mode, then click the checkbox next to *Allow this device to bring the computer out of standby.*

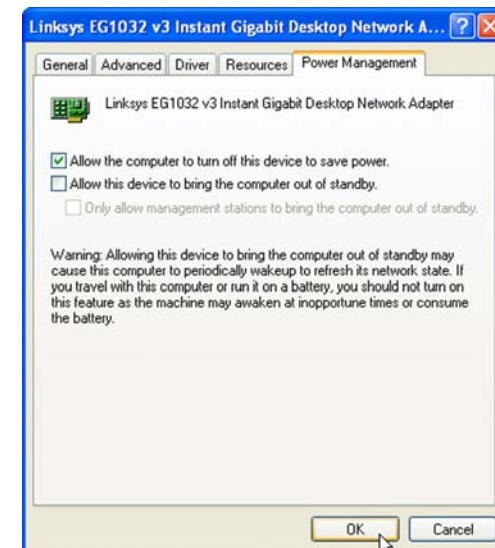When you have finished, click the **OK** button to save your changes.
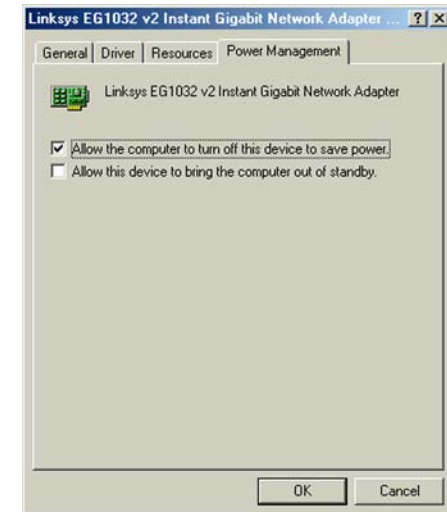
Figure 8-5: Power Management Tab for Windows Me or 98SE

Chapter 8: Configuring the 10/100/1000 Gigabit Network Adapter in Windows Millennium or 98SE
Adapter Configuration

19

Chapter 9: Using the EG1032 Instant Gigabit Network Adapter Diagnostic Utility

Overview

Follow the instructions in this chapter to install and use the Diagnostic Utility.

Installing the Diagnostic Utility

1. Power on your computer.

2. Insert the Setup CD into your computer's CD-ROM drive. After a few seconds, a screen will appear, showing the Utility's files. Select **LinksysDiag_98_ME.exe** if you are running Windows 98 or Window Me. Select **LinksysDiag_2k_XP** if you are running Windows 2000 or Windows XP.

   If this screen does not automatically appear after a few seconds, select *Run* from the Start menu and enter **d:\winutility** in the field (if "D" is the letter of your CD-Rom drive).
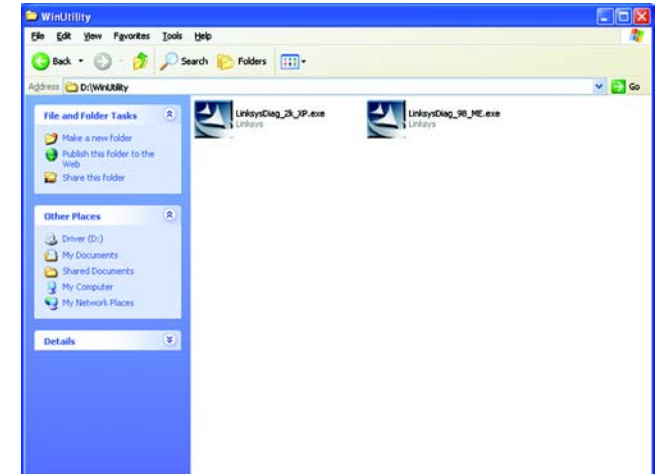
Figure 9-1: Select Windows Operating System

3. The *Welcome* screen will appear to begin installing the Utility. To continue with the installation, click the **Next** button. To close the installation program, click the **Cancel** button.
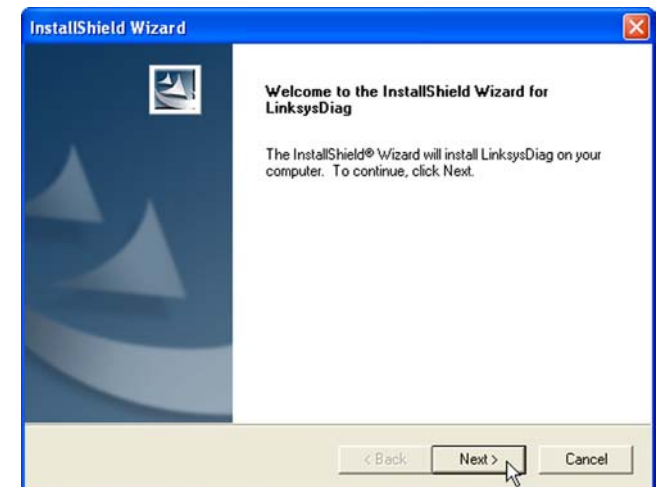
Figure 9-2: Welcome Screen

4. The *Choose Destination Location* screen will appear. To install the files in the default location, click the **Next** button. To install the files in a different location, click the **Browse** button to select the location.

Figure 9-3: Destination Location

5. When installation is complete, click the **Finish** button to close the InstallShield Wizard.

Figure 9-4: InstallShield Wizard Complete

Using the Diagnostic Utility

After you've installed the Diagnostic Utility, an icon will appear in your Windows System Tray. Double-click the icon to open the Utility or right-click the icon to open its menu and select **Launch** to open the Utility.

You can also run the Utility from the *Programs* menu by clicking **Start**, selecting **Programs**, selecting **Linksys**, selecting **GigaUtility**, and clicking **LinksysDiag**.

This will open the Utility's main screen. Click the Adapter (Linksys 1032 v3) to display the Adapter's general information.

The main Utility screen will provide seven choices: *General*, *VLAN*, *Driver*, *Diagnostics*, *Statistics*, *Cable*, *Wake on LAN*.

General

The *General* screen will display the Adapter's current functions and settings.

This screen displays such settings as the Adapter's MAC Address, IP Address, Link Speed, Duplex Speed and others.

Figure 9-1: The Utility's Icon
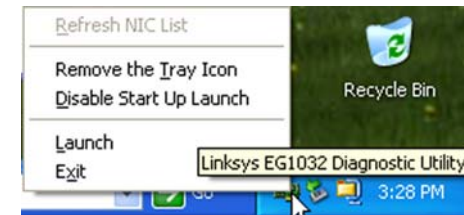
Figure 9-2: The Utility's menu
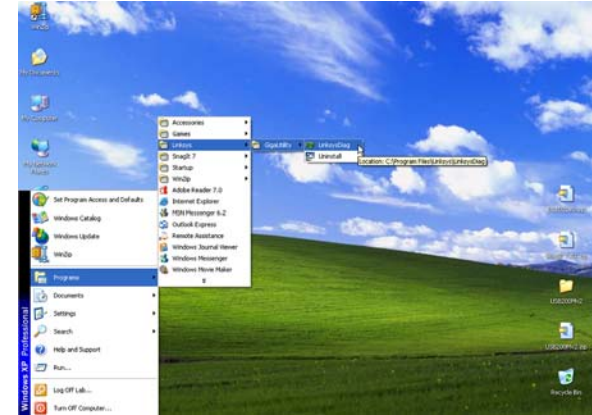
Figure 9-3: Opening the Utility from the Programs menu
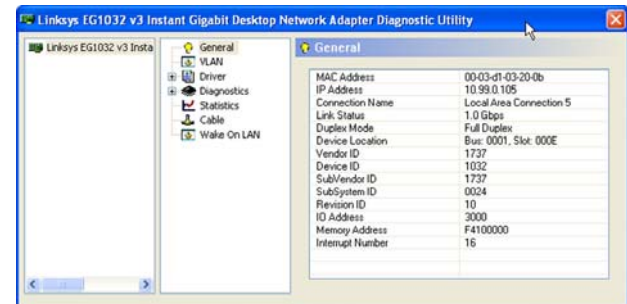
Figure 9-4: The Utility's General screen

VLAN

The *VLAN* screen shows all VLANs established on the Adapter. VLAN ID is used when setting up virtual LANs on your network. By assigning the ID, this PC will access other PCs within the VLAN. Up to 4,096 VLANs can be identified by the Adapter.

The *VLAN* screen also allows you to add a VLAN, by clicking the Add button. You can also delete a VLAN, by clicking the Delete button, and modify and VLAN ID, by clicking the Modify VID button.

Figure 9-5: The Utility's VLAN screen

Driver

The *Driver* screen shows general information about the Adapter's driver, including what version is running, the version number, when it was installed, as well as other information. By clicking the **+** symbol to the left of *Driver* in the menu, you can open the *Advanced Settings* screen.

The *Advanced Settings* screen is intended for Advanced users only and contains the following settings: *802.1p/Q Tagging*, *Flow Control*, *Jumbo Frame*, *Linksys Speed/Duplex Mode*, *Network Address*, *Offload Checksum*, *Offload TCP_Large Send*.

Figure 9-6: The Utility's Driver screen

802.1p/Q Tagging

Enabling this feature allows for quality of service packet tagging when connected to a network switch that supports quality of service. Therefore, this feature should only be enabled when connecting to such a switch. If connecting to a switch that does not support quality of service, disable this feature. To save your modifications of this feature, click the **Modify** button.

Figure 9-7: The Utility's Driver - 802.1p/Q Tagging - screen

Flow Control

This allows for more efficient transfer of data and should only be selected when connected to networking devices that support flow control. To save your modifications of this feature, click the **Modify** button.
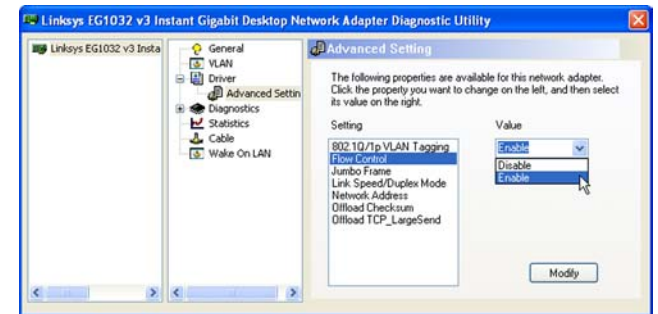
Figure 9-8: The Utility's Driver - Flow Control - screen

Jumbo Frame

This allows you to set frame sizes up to 7 Kbits and is disabled by default. The Adapter must be connected to a switch port that allows for larger frame sizes. To save your modifications of this feature, click the **Modify** button.
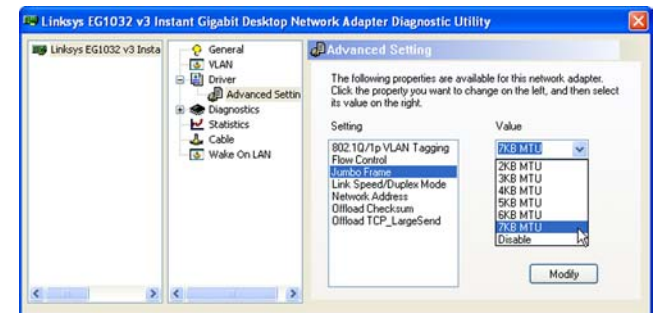
Figure 9-9: The Utility's Driver - Jumbo Frame - screen

Link Speed/Duplex Mode

This allows you to choose the speed at which your network is running. If connecting to an auto-sensing network, where data is transmitted at different speeds, select **Auto-Negotiation**. To save your modifications of this feature, click the **Modify** button.
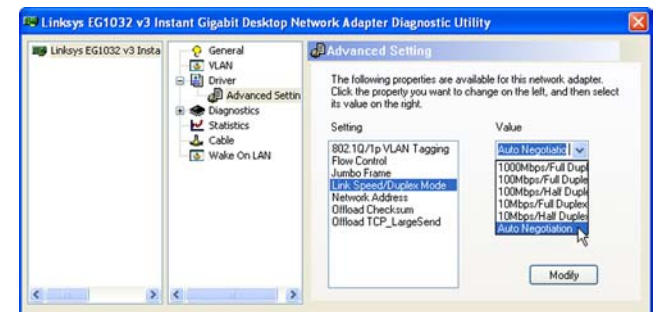
Figure 9-10: The Utility's Driver - Link Speed/Duplex Mode - screen

Network Address

The Network Address selection is set to **Not Present** by default. This setting is the Adapter's MAC Address and should only be changed when no other device with the same MAC Address is present in the network. To save your modifications of this feature, click the **Modify** button.
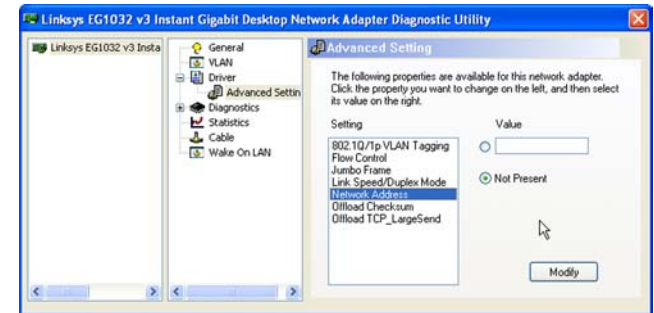
Figure 9-11: The Utility's Driver - Network Address - screen

Offload Checksum

This feature allows the Adapter to perform all TCP Checksum handling, allowing for fast data transfer. To save your modifications of this feature, click the **Modify** button.
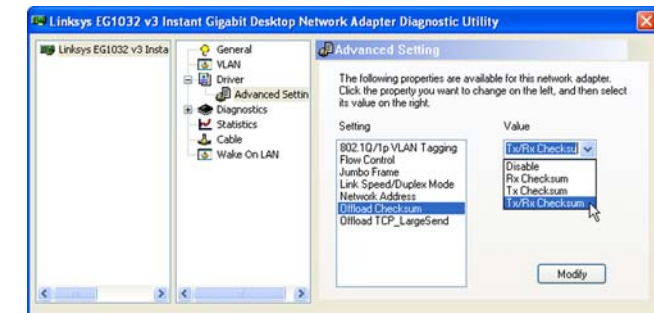
Figure 9-12: The Utility's Driver - Offload Checksum - screen

Offload TCP_Large Send

Performs some or all of the TCP processing for large files. To save your modifications of this feature, click the **Modify** button.
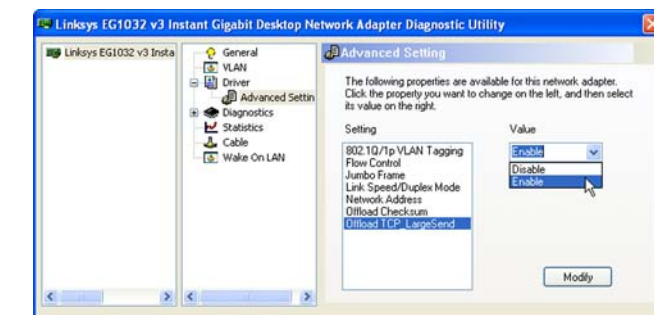
Figure 9-13: The Utility's Driver - Offload TCP_Large Send - screen

Diagnostics

From the *Diagnostics* screen, you can test the Adapter's functionality. Simply check the function to be tested in the checkbox beside the name and click the **Start** button to start the test. Then, click the **Stop** button to stop the test. Check the **Repeat** box for repeated testing. The pass rate will appear under Pass/Fail on the right.

Register   This tests the Registers of the MAC for such things as reading and writing to the MAC chip and getting its feedback value and time.

Figure 9-14: The Utility's Diagnostics screen

EEPROM   This reads and writes a value to the EEPROM, testing that the return value is not the same as the writing value.

Loopback   This tests the Adapter's response to the built-in loopback address.

By clicking the **+** symbol to the left of *Diagnostics* in the menu, you can open the *Send and Receive* screen. The Send and Receive test can only be run by two PCs, each equipped with a 10/100/1000 Gigabit Network Adapter and each running the Utility. Select which is the Initiator and which is the Responder. Then, click the **Start** button to start the test. Click the **Stop** button to stop the test when you are finished.

Statistics

The *Statistics* screen displays the quality of your network connection in real time through the following values:

Throughput This displays the Adapter's throughput speed, both sent and received as well as the total throughput.

Figure 9-15: The Utility's Diagnostics - Send and Receive test - screen

Packets   This displays how many packets are being sent and received via the Adapter.

Errors   This displays how many errors are occurring, both sent and received, with the Adapter.
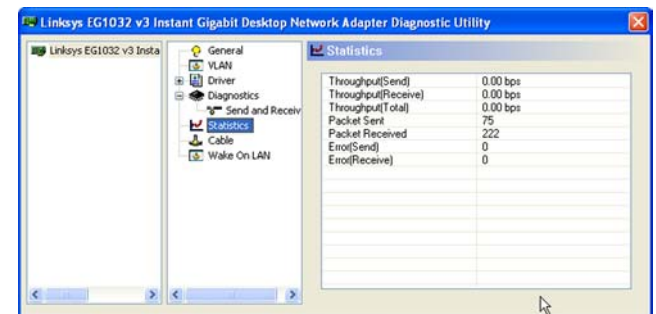
Figure 9-16: The Utility's Statistics screen

Cable

The *Cable* screen will display the length and status of the network cable attached to the adapter. Cable status is displayed as follows:

Normal - The cable is connected and functioning normally.

Open - The cable is either not connected or not functioning properly.

Short - There is a short in the cable.

The *Cable* screen provides information about the Cable analysis is invalid in 10 Mbps speed.
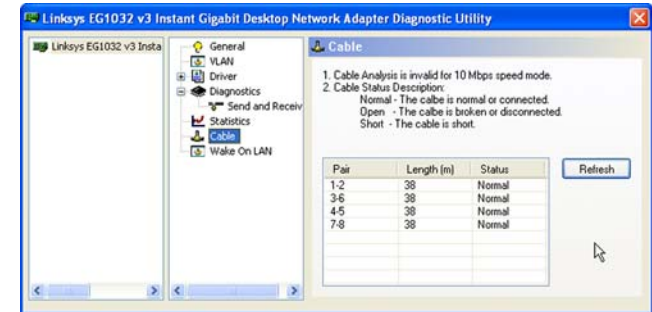
Figure 9-17: The Utility's Cable screen

Wake on LAN

Wake on LAN allows you to remotely wake up your PC, after it has gone into "Sleep Mode", from anywhere on the network. The *Wake on LAN* screen allows you to perform Wake on LAN on any PC equipped with the Adapter and using the Utility. Enter either the PC's Ethernet (or MAC) address, IP address, or NetBIOS name, and click the **Wake Up** button.
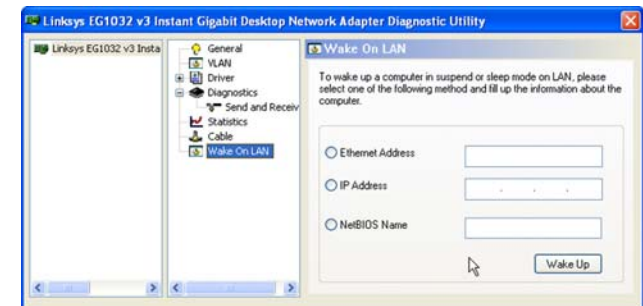
Figure 9-18: The Utility's Wake on LAN screen

Appendix A: Troubleshooting

This appendix consists of two parts: "Common Problems and Solutions" and "Frequently Asked Questions." This appendix provides solutions to problems that may occur during the installation and operation of the Gigabit Network Adapter. Read the description below to solve your problems. If you can't find an answer here, check the Linksys website at *www.linksys.com*.

Common Problems and Solutions

1. **Windows does not detect the Adapter installed, or it attempts to reinstall the Adapter each time you restart your PC.**
    Go through this checklist until your problem is solved:
    *   Make sure the Adapter is securely located in the appropriate PCI slot.
    *   Insert the Adapter into an alternate PCI slot.
    *   You may have previously aborted a new hardware setup. Go to Windows Help to learn how to reinstall all of your Windows networking components.
    *   The motherboard in your system might not be Plug-and-Play compatible, your PC's Plug-and-Play settings may not be enabled, or the motherboard may have Plug-and-Play options not supported by Windows 98SE. If you are not sure, contact the manufacturer of your PC.

2. **Windows cannot locate the driver for the Adapter.**
    Go through this checklist until your problem is solved:
    *   Check the Driver CD you inserted into your PC's CD-ROM drive.
    *   The CD may be defective or files may be missing. Make sure the CD has files in D:\ starting with **WIN**.

3. **The Windows logon screen doesn't appear after I restart my computer.**
    Click **Start**, **Shut Down**, **Close All Programs**, and **Logon as a Different User** (in Windows 98SE, select **Log Off**). If this doesn't solve the problem, your PC's manufacturer may have disabled Windows networking. Contact the manufacturer for help.

4. *After entering a username and password, a window appear that reads, "No Domain Server could be found to validate your Username and Password."*
   Follow these instructions:
   1. Click **Start**, **Settings**, and **Control Panel**.
   2. Double-click **Network**.
   3. Click the **Configuration** tab.
   4. Under the *Following Network Components are Installed* box, highlight **Client for Microsoft Networks** and click the **Properties** button.
   5. When you are in the *Client for Microsoft Networks Properties* window, make sure that *Log on to Windows NT Domain* is unchecked. Once you have made sure that it is unchecked, click the **OK** button.
   6. Restart your computer.

5. *On the Access Control tab, User Level Access is selected, but Shared Level Access is grayed out and not accessible.*
   Go through this checklist until your problem is solved:
   • You previously had your primary network logon set to Client for NetWare Networks. On the *Configuration* tab of the *Network Properties* window, ensure that your primary network logon is set to *Client for Microsoft Networks*.
   • Your personal web server PC or Microsoft Front Page may require you to choose a user level for security reasons.

6. *In Network Neighborhood, I can only see my own computer and no other computers on the network.*
   Go through this checklist until your problem is solved:
   • Make sure all the cables are connected correctly. Make sure the Link/Act LEDs are active on both the Adapter and your network switch or hub. Try a different Ethernet network cable that you know is good.
   • Your computer's workgroup name may be different from the other computers on your network. Make sure each computer on the network is using the same workgroup name and protocol.
   • Use the Find Computer function to search for other computers. Refer to Windows Help for more information.

7. *In Network Neighborhood, I can see all the other computers on the network but not my own computer, and all other computers can see each other but not my own computer.*
   Go through this checklist until your problem is solved:
   • You may not have enabled File and Printer Sharing. Refer to Windows Help for instructions.
   • The Adapter might not be configured properly. Try reinstalling the Adapter's driver. To clear your system of the old installation, refer to Windows Help to learn how to reinstall all of your Windows networking components.

8. **Network Neighborhood is empty.**
   Verify that your Microsoft Client is installed. Refer to Windows Help for instructions if you need to install Microsoft Client. Then verify that you have logged in correctly. Refresh the screen by pressing F5 several times.

9. **I am receiving DHCP errors in Windows.**
   • If you are connecting to a DHCP server, check your cabling connection. If your network requires TCP/IP, check with your network administrator or Windows Help for proper settings.
   • If you do not have a DHCP server on your network and your network does not require TCP/IP, you may remove the TCP/IP Protocol from Windows networking. Refer to Windows Help for specific instructions on how to remove one of your computer's network components, specifically TCP/IP.

10. **In Network Neighborhood, I can only see computers running the same operating system as my own computer (e.g., my PC is running Windows 98SE, and it can only see other Windows 98SE computers).**
    Follow these instructions:
    • Select **Start**, **Find**, **Computer**, and enter the name of the computer in the *Network Neighborhood* window that appear. Click **Find Now**.
    • Make sure you are using the same protocol(s) and workgroup name on the computers.
       1. Click **Start**, **Settings**, and **Control Panel** on two computers running different Windows operating systems.
       2. Click the **Network** icon, choose the **Configuration** tab, and click the **Identification** tab for the Workgroup name. Compare the protocols on both computers and make sure they are the same. If any protocols are missing, refer to Windows Help to install any needed protocol(s).
    • If all computers are using the same protocol(s) and Workgroup name, and Windows 98SE computers can't see Windows Me computers, enable NetBIOS on all the computers using Windows 98SE and Windows Me. Perform the following steps:
       1. The IPX/SPX-compatible protocol should be installed on all Windows computers (refer to Windows Help if you need to add this protocol).
       2. Bring up the properties of the IPX/SPX-compatible protocol by clicking **Start**, **Settings**, and **Control Panel**.
       3. Double-click the **Network** icon.
       4. Choose the **Configuration** tab and highlight **IPX/SPX-compatible Protocol**.
       5. Click **Properties**.
       6. To install NetBIOS, click the **NetBIOS** tab.
       7. Check the box next to *I want to enable NetBIOS over IPX/SPX*.
       8. Click the **OK** button, and click **OK** again.
       9. Windows will copy the appropriate files to your computer. When asked to restart your PC, remove any disks or CDs from your computer, and click **OK**.
       10. Be sure to perform steps 1-9 for all computers that are having trouble seeing your entire network.

11. **The workgroup, protocols, cabling and driver are all working properly, but the PC uses an AMD processor and it can only see itself in the Network Neighborhood.**

In some instances with PCs using AMD processors, the IRQ assigned to the Adapter by the BIOS—as it gets listed on the boot-up screens of most PCs—doesn't correspond to the IRQ assigned by Windows. This can be fixed by disabling the IRQ holder for PCI Steering in the Windows Device Manager. Refer to your PC's documentation for instructions or follow the suggested instructions below. (Keep in mind that this procedure will vary depending on your computer's configuration.)

1. Click **Start**, **Settings**, and **Control Panel**.
2. Double-click the **System** icon.
3. Click the **Device Manager** tab.
4. Open **System Devices** and **PCI Bus**.
5. Click the **IRQ Steering** tab. Remove the checkmark from *Use IRQ Holder* and click the **OK** button.
6. Windows will ask you to restart the computer. If it doesn't ask you, then reboot the computer manually.
7. After the computer boots up, Windows will try to re-detect the PCI Steering. Continue rebooting the PC until Windows stops detecting new hardware and settings for PCI Steering. This normally takes a total of four reboots.

Appendix B: Windows Help

Most Linksys products require Microsoft Windows. Windows is the most used operating system in the world and comes with many features that help make networking easier. These features can be accessed through Windows Help and are described in this appendix.

TCP/IP

Before a computer can communicate with a network router, TCP/IP must be enabled. TCP/IP is a set of instructions, or protocol, all PCs follow to communicate over a network. This is true for wireless networks as well. Your PCs will not be able to utilize wireless networking without having TCP/IP enabled. Windows Help provides complete instructions on enabling TCP/IP.

Shared Resources

If you wish to share printers, folder, or files over your network, Windows Help provides complete instructions on utilizing shared resources.

Network Neighborhood/My Network Places

Other PCs on your network will appear under Network Neighborhood or My Network Places (depending upon the version of Windows you're running). Windows Help provides complete instructions on adding PCs to your network.

Appendix C: Glossary

Adapter - This is a device that adds network functionality to your PC.

Bit - A binary digit.

Boot - To start a device and cause it to start executing instructions.

Database - A collection of data that is organized so that its contents can easily be accessed, managed, and updated.

DHCP (Dynamic Host Configuration Protocol) - A protocol that lets one device on a local network, known as a DHCP server, assign temporary IP addresses to the other network devices, typically computers.

DNS (Domain Name Server) - The IP address of your ISP's server, which translates the names of websites into IP addresses.

Domain - A specific name for a network of computers.

Download - To receive a file transmitted over a network.

DSL (Digital Subscriber Line) - An always-on broadband connection over traditional phone lines.

Dynamic IP Address - A temporary IP address assigned by a DHCP server.

Ethernet - An IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium.

Full Duplex - The ability of a networking device to receive and transmit data simultaneously.

Gateway - A system that interconnects networks.

Half Duplex - Data transmission that can occur in two directions over a single line, but only one direction at a time.

Hardware - The physical aspect of computers, telecommunications, and other information technology devices.

HTTP (HyperText Transport Protocol) - The communications protocol used to connect to servers on the World Wide Web.

Infrastructure - Currently installed computing and networking equipment.

IP (Internet Protocol) - A protocol used to send data over a network.

IP Address - The address used to identify a computer or device on a network.

IPCONFIG - A Windows 2000 and XP utility that displays the IP address for a particular networking device.

IPSec (Internet Protocol Security) - A VPN protocol used to implement secure exchange of packets at the IP layer.

ISP (Internet Service Provider) - A company that provides access to the Internet.

LAN (Local Area Network) - The computers and networking products that make up the network in your home or office.

MAC (Media Access Control) Address - The unique address that a manufacturer assigns to each networking device.

Mbps (Megabits Per Second) - One million bits per second; a unit of measurement for data transmission.

Network - A series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.

NNTP (Network News Transfer Protocol) - The protocol used to connect to Usenet groups on the Internet.

Packet - A unit of data sent over a network.

Ping (Packet INternet Groper) - An Internet utility used to determine whether a particular IP address is online.

POP3 (Post Office Protocol 3) - A standard protocol used to retrieve e-mail stored on a mail server.

Port - 1. The connection point on a computer or networking device used for plugging in a cable or an adapter. 2. The virtual connection point through which a computer uses a specific application on a server.

PPPoE (Point to Point Protocol over Ethernet) - A type of broadband connection that provides authentication (username and password) in addition to data transport.

RJ-45 (Registered Jack-45) - An Ethernet connector that holds up to eight wires.

Router - A networking device that connects multiple networks together, such as a local network and the Internet.

Server - Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

SMTP (Simple Mail Transfer Protocol) - The standard e-mail protocol on the Internet.

SNMP (Simple Network Management Protocol) - A widely used network monitoring and control protocol.

Software - Instructions for the computer. A series of instructions that performs a particular task is called a "program".

Static IP Address - A fixed address assigned to a computer or device that is connected to a network.

Static Routing - Forwarding data in a network via a fixed path.

Subnet Mask - An address code that determines the size of the network.

Switch - 1. Device that is the central point of connection for computers and other devices in a network, so data can be shared at full transmission speeds. 2. A device for making, breaking, or changing the connections in an electrical circuit.

TCP/IP (Transmission Control Protocol/Internet Protocol) - A network protocol for transmitting data that requires acknowledgement from the recipient of data sent.

Telnet - A user command and TCP/IP protocol used for accessing remote PCs.

TFTP (Trivial File Transfer Protocol) - A version of the TCP/IP FTP protocol that uses UDP and has no directory or password capability.

Throughput - The amount of data moved successfully from one node to another in a given time period.

Topology - The physical layout of a network.

TX Rate - Transmission Rate.

Upgrade - To replace existing software or firmware with a newer version.

Upload - To transmit a file over a network.

URL (Uniform Resource Locator) - The address of a file located on the Internet.

Appendix D: Specifications

Model   10/100/1000 Gigabit Network Adapter

Port   One 10/100/1000Mbps, RJ-45 Port

Cabling Type   Cat5e

Dimensions   4.72" x 0.71" x 6.65"
(W x H x D)   (120 mm x 18 mm x 169 mm)

Unit Weight   2.12 oz. (0.06 kg)

Power   5 W Maximum

Certifications   FCC Class B, CE Mark

Operating Temp.   32ºF to 122ºF (0ºC to 50ºC)

Storage Temp.   -4ºF to 158ºF (-20ºC to 70ºC)

Operating Humidity   10% to 85%, Non-Condensing

Storage Humidity   5% to 90%, Non-Condensing

Appendix E: Warranty Information

LIMITED WARRANTY

Linksys warrants to the original end user purchaser ("You") that, for a period of one year, (the "Warranty Period") Your Linksys product will be free of defects in materials and workmanship under normal use. Your exclusive remedy and Linksys's entire liability under this warranty will be for Linksys at its option to repair or replace the product or refund Your purchase price less any rebates.

If the product proves defective during the Warranty Period call Linksys Technical Support in order to obtain a Return Authorization Number. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. When returning a product, mark the Return Authorization Number clearly on the outside of the package and include a copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective products to Linksys. Linksys pays for UPS Ground shipping from Linksys back to You only. Customers located outside of the United States of America and Canada are responsible for all shipping and handling charges.

ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THE WARRANTY PERIOD. ALL OTHER EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF NON-INFRINGEMENT, ARE DISCLAIMED. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to You. This warranty gives You specific legal rights, and You may also have other rights which vary by jurisdiction.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL LINKSYS BE LIABLE FOR ANY LOST DATA, REVENUE OR PROFIT, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE PRODUCT, EVEN IF LINKSYS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL LINKSYS' LIABILITY EXCEED THE AMOUNT PAID BY YOU FOR THE PRODUCT.

The foregoing limitations will apply even if any warranty or remedy provided under this Section fails of its essential purpose. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to You.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623 USA.

Appendix F: Regulatory Information

FCC STATEMENT

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

INDUSTRY CANADA (CANADA)

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

EC DECLARATION OF CONFORMITY (EUROPE)

In compliance with the EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC, and Amendment Directive 93/68/EEC, this product meets the requirements of the following standards:

- EN55022 Emission
- EN55024 Immunity

Appendix G: Contact Information

Need to contact Linksys?
Visit us online for information on the latest products and updates
to your existing products at: http://www.linksys.com or
                                                                           ftp.linksys.com

Can't find information about a product you want to buy
on the web? Do you want to know more about networking
with Linksys products? Give our advice line a call at: 800-546-5797 (LINKSYS)
Or fax your request in to: 949-261-8868

If you experience problems with any Linksys product,
you can call us at: 800-326-7114
Don't wish to call? You can e-mail us at: support@linksys.com

If any Linksys product proves defective during its warranty period,
you can call the Linksys Return Merchandise Authorization
department for obtaining a Return Authorization Number at: 949-261-1288
(Details on Warranty and RMA issues can be found in the Warranty
Information section in this Guide.)